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10/786,359	02/24/2004	Gary A. Freeman	04644-156001	3423
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FISH & RICHARDSON PC			GEDEON, BRIAN T	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Sf

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/786,359	FREEMAN ET AL.
	Examiner Brian T. Gedeon	Art Unit 3766

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 24 February 2004.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-16, 19-23, 26 and 28 is/are rejected.  
 7) Claim(s) 17, 18, 24, 25, 27 and 29 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 6/14/2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date See Continuation Sheet.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date: \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

Continuation of Attachment(s) 3. Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/2/07, 6/9/06, 1/25/06, 7/14/05, 11/5/04, 6/14/04.

## DETAILED ACTION

### ***Claim Objections***

Claims 7-29 are objected to because of the following informalities: A claimed numbered "6" has been omitted; thereby causing succeeding claims to be misnumbered. Due to the misnumbering, claims may improperly dependent on misnumbered base claims. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 7-16, 19, 23, 26 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Halperin et al. (US Patent no. 6,390,996).

In regard to claim 1, Halperin et al. describe a CPR chest compression monitor that aids in application of CPR therapy. The monitor 10 records a physiological signal, i.e., ECG, as well as output from a velocity sensors 24 and 25, col 10 lines 32-34. Halperin et al. provide explicit teaching for "using the information on the velocity to reduce at least one signal artifact in the physiological signal resulting from the chest compression," col 3 lines 1-10, 33-36, 52-55, and 65-67 – col 4 lines 1-5, 10-14, col 9 line 64 – col 10 line 6, and col 11 lines 40-49, and therefore substantially anticipates the

method as claimed. Further, Halperin et al. teach that the CPR induced artifact may stem from force, acceleration, velocity, motion, etc, col 11 lines 50-55.

In regard to claim 2, the physiological signal of Halperin et al. is an ECG.

In regard to claim 7, the artifact sensor may be a velocity sensor in the form of gyro 24 and 25, col 10 lines 32-34.

In regard to claim 8, the displacement sensor is an accelerometer 12, which can be integrated by microprocessor 28, col 6 lines 11-19.

In regard to claims 9 and 26, Halperin et al. teach that the CPR induced artifact may stem from force, acceleration, velocity, motion, etc, col 11 lines 50-55. The acquired signals (e.g., ECG and acceleration data) are overlapped and aligned in both time and frequency space in order to reduce signal artifact, col 11 line 59 – col 12 line 7.

In regard to claims 10, 12, and 28, the invention described by Halperin et al. uses a linear predicitve filtering system and automatically adjusts for removing chest compression artifact, col 12 lines 2-19. A Kalman filter may be used, col 11 lines 4-5.

In regard to claims 11 and 13, the invention of Halperin et al. has defibrillation electrodes 62 which can administer defibrillation shocks, col 9 lines 57-60, in the event that a ventricular defibrillation occurs, col 1 lines 41-47, which Halperin et al. teach is the main form of cardiac arrest. The predictive filtering technique is considered to be an adaptive technique.

In regard to claims 14-16,  $e_m$  is the physiological signal before filtering out of the artifact, and  $e_m'$  is the result of the filtering, and is the pure ECG signal, col 12 lines 12-

19. The Examiner interprets this signal (i.e.,  $e_m'$ ) to be the difference signal. Signal  $a_p$  is the amount of artifact.

In regard to claim 19, a FFT is taken of the signal  $e_m'$ , col 12 lines 20-43.

In regard to claim 23, the linear filter of Halperin et al. computes coefficients, col 11 lines 16-19.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halperin et al. (US Patent no. 6,390,996).

In regard to claims 3-5, Halperin et al. substantially describes the invention as claimed, except does not describe the different types of physiological signals that can be used on conjunction with CPR therapy. However, the Examiner considers the physiological signals, and their ascertainment, are well known as well as being art recognized equivalents in the art for aiding in delivery of chest compressions, and therefore using them would have been obvious to one of ordinary skill in the art at the time the invention was made.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halperin et al. (US Patent no. 6,390,996) in view of Haberl et al. (US Patent no. 5,211,179).

In regard to claims 20- 22, Halperin et al. describe the invention as claimed except for the filter comprising a FIR filter or that the signal is normalized. Haberl et al. describes a system an a method for analysis of electrocardiogram signals in which they teach that it is a common step in signal processing to normalize a signal, col 1 lines 10-19. Halperin et al. also use a adaptive filter configuration, col 5 lines 7-11, in which the filter could be a finite impulse response filter, col 7 lines 25-42. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was to modify the invention of Halperin et al. with the teachings of Haberl et al. since Haberl et al. teach that signal normalization and FIR filters are well known tools and steps in signal processing.

#### ***Allowable Subject Matter***

Claims 17, 18, 24, 25, 27, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Gedeon whose telephone number is (571) 272-3447. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela D. Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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